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Asymmetrie and symmetric local surface-plasmonpolariton excitation on chains of nanoparticles

Evlyukhin A., Reinhardt C., Evlyukhina E., Chichkov B.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

We theoretically study the features of the surface-plasmon-polariton (SPP) excitation on single or chains of spherical metal nanoparticles located near a metal surface with an inclined incident light beam. It is found that by tuning the incident angle of an external light beam and the parameters of the surface nanoparticle structures one could obtain symmetric or asymmetric excitation of SPP beams propagating into certain directions. The reasons and conditions for this behavior and the efficiency of SPF excitation as a function of the incident angle are discussed. © 2009 Optical Society of America.

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